

Contents

Drop-in Tri Chemistry Charger	
Logic In-Vehicle Charger	2
Endura Single Desktop Rapid Charger	4
Endura Single Vehicle Charger	5
Endura Six Bay Rapid Charger	6
Endura Charger Cup List	8
ACT Intelligent Chargers.....	
ACT Intelligent Single & Dual Desktop Chargers.....	10
ACT Intelligent Vehicle Charger	11
ACT Intelligent Six Bay Desktop Chargers.....	12
ACT Intelligent Capacity Gauge.....	13
ACT – Which Charger to choose?.....	14
ACT Battery Adaptor List	15
Charging Technology	17
Power Supply.....	
Logic Energy Power Supply	22
Replacement Batteries.....	
Logic Energy Replacement Batteries	23
Wire Kits	
Listen Only Earphone Option	28
One Wire Surveillance Kits.....	30
Two Wire Surveillance Kits	32
Three Wire Surveillance Kits	36
Remote Speaker Microphones	
Commercial Speaker Microphones.....	38
Professional Speaker Microphones	42
Waterproof Speaker Microphones	44
IP Rating Explained.....	44
Headsets	
Lightweight Headsets.....	48
Heavy Duty Over-the-Head Headsets	52
Heavy Duty Behind-the-Head Headsets	56
Hardhat Attach Headsets.....	60
Ear-Defender Communication Kits.....	62
Audio Accessory Spares & Adaptors	
Audio Adapters	63
Earphone Spares	64
Bluetooth Headsets	
Full Duplex Bluetooth Headsets	65
Voice Activated Systems	
Temco Commercial VOX Solutions.....	67
Temco Professional VOX Solutions	67
Temple Transducer Headset & DSP Controlled VOX	69

Logic Energy In-Vehicle Charger

Logic Energy In-Vehicle Charger is specifically designed for professional radio users in demanding environments. Its ultra-rugged design and modular concept makes it ideal for public safety, construction, service and forestry vehicles. The modular system allows installers to separate the radio holder from the charge controller which greatly increases the options for in-vehicle mounting.

The product incorporates the industry's most compact and lowest profile radio holder. The holder features high impact and vibration tolerant contacts. These contacts are highly robust, corrosion resistant and maximise positive contact with the radio. The contacts have a cycle life rating of more than 20,000 battery insertions, far superior to the typical in-vehicle charger. This charger is available for a wide range of radio models from Tait, Kenwood, HYT/Hytera and Motorola.

Features

- Low profile and custom fitting radio holder with multidirectional mounting bracket
- High impact and vibration tolerant contacts
- Compact charge controller with integrated mounting brackets
- High impact and vibration tolerant contacts
- Compact charge controller with integrated mounting bracket
- Rapid charging for NiCd, NiMH, Li-Ion and LiPo batteries.



Specifications

Battery Chemistries	NiCd/ NiMH/ LiIon/LiPo
Weight	650g
Dimensions	145 x 78 x 30 mm
Operating Temperature	15°C to 30°C
Power supply input	12V-24V DC @ 1.0 (maximum)
Charge rate	700mA



Logic In-Vehicle Charger

Product Code	Description	Compatibility
LEVC-TA2	Logic Energy In-Vehicle Charger for Tait TP8100 Series	TP8110, TP8115, TP8135, TP8120, TP8140
LEVC-TA3	Logic Energy In-Vehicle Charger for Tait TP8100 Series	Tait TP9100, TP9135, TP9140, TP9155, TP9160
LEVC-HY2	Logic Energy In-Vehicle Charger for HYT TC Series	TC-610P, TC-620
LEVC-HY4	Logic Energy In-Vehicle Charger for Hytera DMR PD Series	PD702, PD782
LEVC-MT2	Logic Energy In-Vehicle Charger for Motorola GP328/ GP328+ Series	GP328/GP328/GP340, HT750, HT1250, GP328+, EX500, EX600
LEVC-MT13	Logic Energy In-Vehicle Charger for Motorola XTS Series	XTS1500/XTS2500/ XTS3500/XTS5000
LEVC-MT16	Logic Energy In-Vehicle Charger for Motorola Mototrbo Series	XPR6300, XPR6350, XPR6500, XPR6550
LEVC-HA1	Logic Energy In-Vehicle Charger for Harris P5400 Series	P5300, P5350, P5370, P5450, PG470, P7300, P7350, P7370
LEVC-KW3	Logic Energy In-Vehicle Charger for Kenwood	NX220, NX320, TK2160, TK2170, TK2360, TK3140, TK3160, TK3170, TK3173, TK3360
LEVC-KW4	Logic Energy In-Vehicle Charger for Kenwood Nexedge Series (Various TK Series)	NX200/NX210, NX300, TK2180, TK3180, TK5210, TK5220, TK5310,
LEVC-IC3	Logic Energy In-Vehicle Charger for Icom	IC-F14, IC-F15, IC-F24, IC-F24S, IC-F33GS, IC-F33GT, IC-F34GS, IC-F34GT, more
LEVC-EF1	Logic Energy In-Vehicle Charger for EF Johnson	EF Johnson 51SL ES, Motorola MT1500, PR1500, XTS1500, XTS2500, XTS3000, XTS3500, XTS5000
LEVC-SM1	Logic Energy In-Vehicle Charger for Simoco (in development)	SRP9120/30
LEVC-SM2	For Simoco in Development	SRP9170/80
LEVC-BK1	For Relm BK in Development	EPH, GPH, LPA, LPH, LPX

Endura Single Desktop Rapid Charger

Logic Energy rapid chargers use a fully interchangeable cup system to support most new and discontinued two way radios. This provides ultimate flexibility for mixed radio fleets and a cost effective route when migrating to a new radio platform. Batteries can be charged on or off the radio.

All units incorporate individual microprocessors that fully and safely support NiCd, NiMH and LiIon battery chemistries. This is the most versatile, cost effective and user friendly charger system available today.

Features

- Tri-chemistry: Fully supports NiCd, NiMH and LiIon batteries
- External switched mode power supply (included)
- Rugged case
- Exterior On/ Off power switch on six bay charger
- Tri-colour status LED

Endura Single Desktop Charger LETWC-1

Specifications

Battery Chemistries	NiCd/ NiMH/ LiIon
Weight	275g
Dimensions	115 x 136 x 86 mm
Operating Temperature	15°C to 30°C
Power supply	240v AC nominal With power adaptor
Charge rate	700mA
Approvals	UL, C-Tick



Please see charger cup selection list for supported radio at the end of this section

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Endura Single Vehicle Charger

Logic Energy rapid chargers use a fully interchangeable cup system to support most new and discontinued two way radios. This provides ultimate flexibility for mixed radio fleets and a cost effective route when migrating to a new radio platform. Batteries can be charged on or off the radio.

All units incorporate individual microprocessors that fully and safely support NiCd, NiMH and LiIon battery chemistries. This is the most versatile, cost effective and user friendly charger system available today.

The single **vehicle** charger comes complete with a metal mounting bracket, tie down straps, and a vehicle power adaptor.

Features

- Tri-chemistry: Fully supports NiCd, NiMH and LiIon batteries
- 12v DC capable
- External switched mode power supply (included)
- Rugged case
- Exterior On/ Off power switch on six bay charger
- Tri-colour status LED
- Complete with vehicle mounting kit

Endura Single Vehicle Charger LETWC-1M



Specifications

Battery Chemistries	NiCd/ NiMH/ LiIon
Weight	320 g
Dimensions	116 x 98 x 106 mm
Operating Temperature	15°C to 30°C
Power supply	12 – 24v DC nominal
Charge rate	700mA
Approvals	UL, C-Tick

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Endura Six Bay Rapid Charger

Logic Energy rapid chargers use a fully interchangeable cup system to support most new and discontinued two way radios. This provides ultimate flexibility for mixed radio fleets and a cost effective route when migrating to a new radio platform. Batteries can be charged on or off the radio.

All units incorporate individual microprocessors that fully and safely support NiCd, NiMH and LiIon battery chemistries. This is the most versatile, cost effective and user friendly charger system available today.

The six bay charger has been designed to minimize the area required for charging six batteries – on or off the radio – making it perfect for rental operations or anywhere space is at a premium.

Features

- Tri-chemistry: Fully supports NiCd, NiMH and LiIon batteries
- 12v DC capable
- External switched mode power supply (included)
- Rugged case
- Exterior On/ Off power switch on six bay charger
- Tri-colour status LED
- Wall mount & vehicle mount kits with radio restraints available for six bay charger

Endura Six Bay Charger LETWC-6



Specifications

Battery Chemistries	NiCd/ NiMH/ LiIon
Weight	3.1 Kg
Dimensions	510 x 172 x 80 mm
Operating Temperature	15°C to 30°C
Power supply	240v AC nominal With power adaptor
OR	12 – 24v DC With vehicle adaptor
Charge rate	700mA per bay
Approvals	UL, C-Tick

Vehicle Power Adaptor LETWC-VPA



Please see charger cup selection list for supported radio at the end of this section

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Endura Universal Tri-Chemistry Chargers

Part Number	Description
LETWC-1	Single Bay Tri-chemistry Desktop rapid charger – excludes cup & PSU
LETWC-1M	Single Bay Tri-chemistry In-Vehicle rapid charger - 12v DC -mounting plate, cigarette plug, excludes charger cup
LETWC-6	6-Bay Tri-chemistry rapid charger– excludes charger cups.
LETWC-VPA	DC Power Cable - with cigarette lighter plug Lead for vehicle
LETWC6-PS	Endura 6 bay Charger Power Supply- external

Please select your choice of charger followed by cups for the model you require.

Endura Charger Cup List

	Radio Model	Part Number
MOTOROLA	GP328 / GP329 / GP338 / GP339 / GP328Plus	LETWP-MT2
	GP300	LETWP-MT7
	GP900 / MTS2000	LETWP-MT9
	XTS3000 / XTS5000	LETWP-MT13
	MOTOTRBO	LETWP-MT16
	CB PRO PLUS	LETWP-MT18
ICOM	IC-F3 / F4	LETWP-IC2
	IC-F11 / F21	LETWP-IC1
	IC-F14 / F24 / F33GT / F43GT / F3343GS/ IC-F3/F4	LETWP-IC3
	IC-F50 / F60 / M88	LETWP-IC4
KENWOOD	TK270 / TK280 / TK370 / TK380	LETWP-KW1
	TK2140 / TK3140 / TK2160 / TK3160/ NX220/320	LETWP-KW3
	TK2180 / TK3180/ NX200/ NX300	LETWP-KW4
	TK2207 / TK3207	LETWP-KW6
TAIT	TP8100	LETWP-TA2
VERTEX	VX160 / VX420	LETWP-VX1
	VX820 / VX920	LETWP-VX3
	VX350	LETWP-VX4
HYTERA	TC-610	LETWP-HY2
	TC-700	LETWP-HY3

*Pricing based on per cup

Other charging cups are available for other radio models – please contact us for further information.

ACT Intelligent Chargers



The Advanced Charger Technologies (ACT) charger range is the most advanced intelligent charging and conditioning solution available.

If two-way radio batteries compromise your radio communications or tie up manpower with complicated maintenance programs, ACT provides a solution to battery headaches. ACT chargers are used extensively across Australia and New Zealand with many public safety and large radio fleet users benefiting from this unique technology.

ACT intelligent chargers use patented adaptive pulse charging to offer the fastest fully automated conditioning charge available. Batteries are conditioned during every charge and feature very precise termination with NO trickle charge to ensure batteries are never overcharged. Battery shift and product life are extended without any user intervention.

After more than 3 years of development, ACT has recently released a major update to the intelligent charger product range. The new ACT line up breaks new ground in bringing cutting edge technology to battery charging and maintenance, while leveraging ACT's history of expertise in the industry. The new technology features superior analyzing accuracy and simultaneous conditioning and charging of Ni-Cd, NiMH, Li-Ion as well as Li-Poly battery chemistries and is intrinsically safe (IS) compatible.

All products now incorporate ACT's Impres drop-in charging technology specific charger hardware for Impres is no longer required. Whilst physically identical to the previous generation which has now been discontinued, this update has required a completely new electrical platform and new product identities. A cross reference between old and new product codes is detailed in the table below

Frequently asked Questions

Q: Can I still purchase the old ACT range of chargers? (i70, i75, i30, i40 etc.)

A : *No, this range is now replaced with the following product codes as per the table below (eg: i70 > i8)*

Q: I have an i70 (old version) charger, can I still purchase adapters for this?

A: *yes, you still can purchase any old version adapters – refer to page 15 for the Old Part Number column.*

Q: If I was to purchase a new version i20 desktop charger, which version adapter do I require now?

A: *please refer to page *** and use the New Part Number Code. The "-B" adapter product codes are for the new version of chargers.*

Q: Can I use old adapters on new version chargers?

A: *No, you have to buy new adapters for the new version chargers. Old adapters and new chargers are not compatible/interchangeable and vice versa.*

Q: How is the iGauge affected by the new range of chargers?

A: *the iGauge remains unaffected with version upgrades – you can use your old iGauge with new versions*

<i>Old</i>	<i>New</i>
i70	i80 - Six Bay Conditioning Charger
i75	i85 - Six Bay Intelligent Charger with Maintainer
i30	i20 - Single Bay Intelligent Desktop Charger
i35	i25 - Single Bay Intelligent In-Vehicle Charger
i40	i50 -Dual Bay Intelligent Charger
i45	i55 -Dual Bay Intelligent In Vehicle Charger
New Product	i87 - Six-Bay Reconditioner

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ACT Intelligent Single & Dual Desktop Chargers

Features & Specifications

- Ultra fast charge time – NiCd in 30-40 minutes
- Extends battery life
- Eliminates memory effect
- Automatically conditions battery during EVERY charge
- Interchangeable adaptors
- No user training or discipline required
- Precise termination of charge
- Patented DEW™ adaptive pulse charging
- Optional iGauge provides analyzing capability

Specifications:

AC Input Voltage:	115 / 230 VAC, 50 / 60 Hz
DC Input Voltage :	19v (power pack supplied)
Battery range:	4 – 10 cell NiCd 4 – 10 cell NiMH 1 – 3 cell LiIon
Charge Time	NiCd – 30 min/ Ah typical NiMH – 40 min/ Ah typical LiIon – 50 min/ Ah typical
Weight	0.75 Kg (i30) 1.2 Kg (i40)
Approvals	UL, CE, CSA, e11, C-Tick

LEi20 Single Bay Desktop Charge



LEi50 Dual Bay Desktop Charger



ACT Intelligent Vehicle Chargers

The ACT i25 single & i55 dual in-vehicle chargers operate from 12V and 24V DC and is ideal for emergency response vehicles and mobile communication units. The i25 single charger is supplied complete with a vehicle mounting bracket and the dual bay i55 has a very low profile making it particularly suitable for public safety vehicles where equipment space is at a premium. The dual bay configuration also allows 2 different radio models to be charged at the same time.

Both ACT vehicle chargers can be hardwired into the electronics of any vehicle for fast, reliable battery charging that returns two-way radios to service quickly.

ACT vehicle chargers include a 'maintenance' mode to ensure batteries are always kept fully charged without overcharging.

Features & Specifications

- Ultra fast charge time – NiCd in 30-40 minutes
- Extends battery life
- Eliminates memory effect
- Automatically conditions battery during EVERY charge
- Interchangeable adaptors
- No user training or discipline required
- Precise termination of charge
- Patented DEW™ adaptive pulse charging
- Operates from 10-30v DC

LEi25 Single Bay Vehicle Charger Everyday Vehicle Charging



Mounting kit supplied

Specifications:

Input Voltage:	10 – 30v DC
Standby current	~ 1mA Maintenance mode)
Charge Time	NiCd: 30 to 90 mins depending on battery capacity
Weight	0.8 Kg (i35) 1.2 Kg (i45)
Approvals	UL, CE, CSA, e11, C-Tick

LEi55 Dual Bay Vehicle Charger Designed for Public Safety



ACT Intelligent Six Bay Desktop Chargers – 3 Options

LEi80 Six Bay Desktop Charger Everyday Charging Solutions



- Ultra fast charge time – NiCd in 30-40 minutes
- Extends battery life
- Eliminates memory effect
- Automatically conditions battery during EVERY charge
- Interchangeable adaptors
- No user training or discipline required
- Precise termination of charge
- Patented DEW™ adaptive pulse charging Optional iGauge provides analyzing capability

LEi85 Six Bay Maintainer Design for Emergency and Backup Batteries



- Specifically designed for backup & emergency batteries or anyone storing batteries for days, weeks or even months but require fully charged batteries at a moment's notice.
- Maintains battery at full charge without damage
- Periodic & automatic cycling to ensure batteries are kept in optimal condition.

LEi87 Six Bay Conditioner Ideal for Workshops



With the push of a button, the battery can be recycled and reconditioned to eliminate the “memory” effect and restore the lost capacity.

- Up to 6 independent reconditioning cycles at the push of a button.
- Multi chemistry battery charging and reconditioning.
- Six independent interchangeable adapters.
- Drop-In capability for Motorola® Impres™ radios/batteries as well as non-Impres™ batteries.
- ACT's Patented Dynamic Electrochemical Waveform (DEW™) technology.
- Battery Conditioning/Charge with every charge
- Ideal for mixed radio battery fleets, fleets in transition and large questionable battery inventories.

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ACT Intelligent Capacity Gauge

The iGauge is the perfect companion to an ACT intelligent charger.

The iGauge is an intelligent capacity display unit that fits underneath ANY existing adaptor plates and delivers precise milliamp readings of a battery's capacity – regardless of battery chemistry.

The iGauge also features deep conditioning through three complete discharge/ re-charge cycles – virtually eliminating all memory effects and restoring lost capacity in NiCd and NiMH batteries.

Due to long term capacity loss effects associated with LiIon cells, the reACTivate cycle is not available for this type of battery. Please note that the iGauge is compatible with both new and old version chargers.

Features	LEiGauge
<ul style="list-style-type: none"> Intelligent capacity gauge Fits under any adaptor on ACT six bay chargers Easy to use Battery recovery program (reACTivate) Must be used with ACT i2, i80 or i85 chargers 	

Function Summary

Charge/ Discharge

The default mode is the charge and automatic condition mode. If a battery is placed on the adaptor this mode is started automatically after 30 seconds. Pressing 'Next' accesses the other modes.

Capacity Check

The capacity check function is used to ascertain the energy stored in a battery. Once the capacity function is selected the battery is discharged, accurately measured and then recharged. Capacity is displayed in mAh

ReACTivate

The reACTivate function discharge and re-charge cycles the battery three times terminating with a fully charged battery. At the end of each individual cycle a capacity measurement is displayed which allows a user to determine if capacity is being recovered. (NiCd & NiMH batteries only).

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ACT – Which Charger to Choose?

	i20 Single Bay Desktop Charge	i25 Single Bay Vehicle Charger	i50 Dual Bay Desktop Charger	i55 Dual Bay Vehicle Charger	i80 Six Bay Desktop Charger	i85 Six Bay Maintaine r	i87 Six Bay Condition er
Patented DEW Technology	✓	✓	✓	✓	✓	✓	✓
Tri-Chemistry	✓	✓	✓	✓	✓	✓	✓
Works on IS (ATEX)/ Non-IS	✓	✓	✓	✓	✓	✓	✓
Interchangeable adapters	✓	✓	✓	✓	✓	✓	✓
Compatible with iGUAGE	✓		✓		✓		
Ideal for everyday use	✓	✓	✓	✓	✓		
Designed for mobile use		✓		✓			
Ideal for large volume reconditioning							✓
Designed for emergency stand-by use						✓	

ACT Battery Adaptor List

	Radio Model	Type	Battery Type	Old Part Number	New Part Number
MOTOROLA	GP300	NiCd / NiMH	HNN9628A	LEiMOT12-NN	LEiMOT12-NN-B
	GP328 / 338 / 329 / 339 GP700 / 760 / 780	NiCd / NiMH	HNN9008AR HNN9009AR	LEiMOT18-NN	LEiMOT18-NN-B
	GP328 / 338 / 329 / 339 GP700 / 760 / 780	LiIon	HNN9013	LEiMOT18-LIN	LEiMOT18-LIN-B
	GP328 PLUS / 338 PLUS GP329 PLUS / 339 PLUS	LiIon	JMNN4023 JMNN4024	LEiMOT25-LIN	LEiMOT25-LIN-B
	GP900 / MTS2000 / MTX838 MTX8000 / PTX1200	NiCd / NiMH	NTN7143 NTN7144	LEiMOT10-NN	LEiMOT10-NN-B
	SABER	NiCd		LEiMOT14-NCD	LEiMOT14-NCD-B
	XTS2500	NiCd / NiMH	NTN9815 NTN9816	LEiMOT32-NN	LEiMOT32-NN-B
	XTS2500	LiIon		LEiMOT32-LIN	LEiMOT32-LIN-B
	XTS3000 / 5000	NiCd / NiMH	NTN8923AR	LEiMOT17-NN	LEiMOT17-NN-B
	XTS3000 / 5000	LiIon		LEiMOT17-LIN	LEiMOT17-LIN-B
	MotoTRBO	NiCd / NiMH		LEiMOT34-NN	LEiMOT34-NN-B
	MotoTRBO	LiIon		LEiMOT34-LIN	LEiMOT34-LIN-B
	APX7000	NiCd / NiMH		LEiMOT35-NN	LEiMOT35-NN-B
	APX7000	LiIon		LEiMOT35-LIN	LEiMOT35-LIN-B
ICOM	IC-F3 / F4 / F3S / F4S	NiCd	BP196	LEiCOM10-NCD	LEiCOM10-NCD-B
	IC-F11 / F21 / F30 / F40 IC-F3GT / F4GT	NiCd / NiMH	BP209 BP210	LEiCOM11-NN	LEiCOM11-NN-B
	IC-F11 / F21 / F30 / F40 IC-F3GT / F4GT	LiIon		LEiCOM11-LIN	LEiCOM11-LIN-B
	IC-F14 / F24 / F33 / F43 IC-F3023 / 4023 / 3063 / 4063	LiIon	BP231 BP232	LEiCOM13-LIN	LEiCOM13-LIN-B
	IC-F50 / F60	LiIon	BP227Li	LEiCOM14-LIN	LEiCOM14-LIN-B

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	Radio Model	Type	Battery	Old Part Number	New Part Number
KENWOOD	TK-250 / 350	NiCd / NiMH		LEiKEN10-NN	LEiKEN10-NN-B
	TK-260 / 270G / 370G	NiCd / NiMH	KNB-15A / KNB-17A KNB-20N / KNB-21N	LEiKEN11-NN	LEiKEN11-NN-B
	TK-280 / 380 / 480				
	TK-2140 / 3140 TK-2160 / 3160	NiCd / NiMH	KNB-25A KNB-26N	LEiKEN12-NN	LEiKEN12-NN-B
	TK-2140 / 3140 TK-2160 / 3160	LiIon	KNB-24L KNB-35L	LEiKEN12-LIN	LEiKEN12-LIN-B
	TK 2180 / 3180	NiCd / NiMH	KNB-31A / KNB-32N	LEiKEN15-NN	LEiKEN15-NN-B
	TK 2180 / 3180	LiIon	KNB-33L	LEiKEN15-LIN	LEiKEN15-LIN-B
	TK 2207 / 3207	NiMH	KNB-29	LEiKEN16-NN	LEiKEN16-NN-B
	TK 2202L / 3202L	LiIon	KNB-45L	LEiKEN16-LIN	LEiKEN16-LIN-B
TAIT	Orca & 5000 Series	NiCd / NiMH	TOPB200 / TOPB500	LEiTAI10-NN	LEiTAI10-NN-B
	Orca & 5000 Series	LiIon	LETOPB900	LEiTAI10-LIN	LEiTAI10-LIN-B
	TP7000 Series	LiIon		LEiTAI40-LIN	LEiTAI40-LIN-B
	TP8100 Series	LiIon	TPK-BA-100	LEiTAI30-LIN	LEiTAI30-LIN-B
VERTEX	VX-160 / VX-180 / VX-210 VX-410 / VX-420 / VX-800	NiCd / NiMH	FNB-V57 / FNB-V64 FNB-V83 / FNB-V94	iVER11-NN	LEiVER11-NN-B
	VX-160 / VX-180 / VX-210 VX-410 / VX-420 / VX-800	LiIon	FNB-V67Li	iVER11-LIN	LEiVER11-LIN-B
	VX-820	LiIon	FNB-V87Li	iVER820-LIN	LEiVER820-LIN-B
	VX-820 I.S. Battery	LiIon	FNB-V92LI/IS	iVER820-LIN-IS	LEiVER820-LIN-IS-B

Other battery adaptors are available for other radio models – please contact us for further information

Charging Technology

Historically PMR users have had little choice when their batteries need to be recharged. Some methods still used today can be traced back to the invention of the rechargeable battery. While conventional charging techniques successfully put energy back into batteries they do not take into account the individual chemical state of each battery. In other words traditional chargers simply push energy in to the battery without regard to what the battery really requires.

The main problem with traditional battery charging is that the discipline of the operator must be relied upon to ensure the procedure is carried out to best effect without degrading the battery. OEM chargers detail a variety of rules that need to be followed. Few users have the time or the patience to stick to the complicated regime recommended by manufacturers. As a result many organisations invest significant resources on battery management to combat the problems caused by antiquated charging methods.

The following section gives a brief overview of the different battery charging methods available.

Trickle Charger

The trickle or slow charger is the standard unit provided by most handset manufacturers. The unit works by pushing a steady current in to the battery at a rate which is normally 10% of the battery's capacity. So for example a 1700mAh battery will be charged at 170mAh. Typical charge times range from 8 to 12 hours.

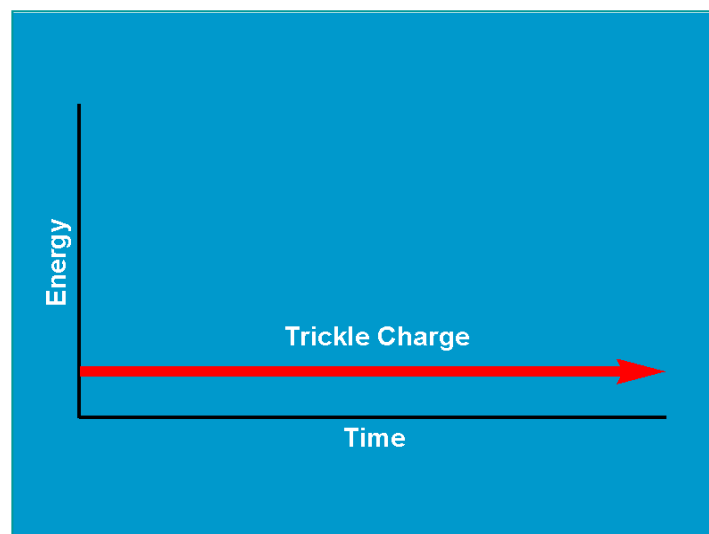
It is left to the user to terminate the charge at the correct time. Failure to remove the battery from the charger means that more energy enters the battery than it can absorb. This causes a host of degenerative chemical processes within the battery that lead to reduced capacities and premature failure. In the worst cases the temperature inside the cells will become so high that the battery vents off the gas build up.

Benefits

- Lowest Cost
- Often included with radio

Drawbacks

- Long charge times
- Requires user discipline
- Constant rate of charge
- No conditioning process
- Long formation times
- No termination of charge
- Detrimental to the battery



Charge profile for trickle charger showing constant current input

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Fast or Rapid Charger

As the name suggests this type of charger is quicker than the standard trickle charger. Rapid chargers work by providing a high rate of constant energy into the battery until a reference voltage is reached. Although the green ready LED illuminates the battery is usually only charged to 80% of its capacity. The charge is then dropped to a trickle rate that is approximately one tenth of the battery capacity. It is then up to the user to guess when the battery is charged to full capacity.

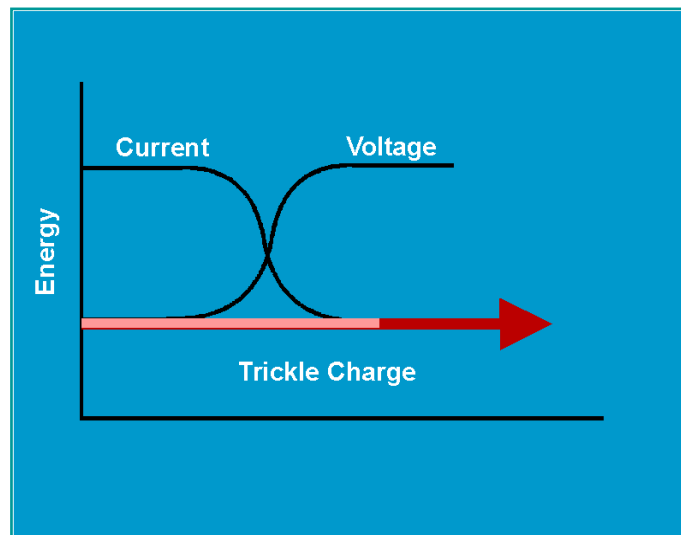
Many manufacturers stipulate that the battery should be left on the charger for between 1 and 2 hours after the green light comes on. With no termination the rapid charger has a tendency to quickly overcharge and damage batteries.

Benefits

- Shorter charge times
- Can be multi-chemistry

Drawbacks

- Poor battery life
- Inaccurate charge indication
- No conditioning process
- Long formation times
- Requires user discipline
- Detrimental to the battery



Charge profile for rapid charger showing high current rate then trickle charge at 90%

Australia

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New Zealand

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Pulse Charger

Pulse charging techniques were pioneered at the turn of the 20th Century with the last significant patent issued in 1967. The patent has now expired and a variety of pulse chargers are available from a number of manufacturers. The pulse charger works by subjecting the battery to a sequence of pre-programmed current pulses. The advantage of the pulse charger is that it provides for rest periods during charge.

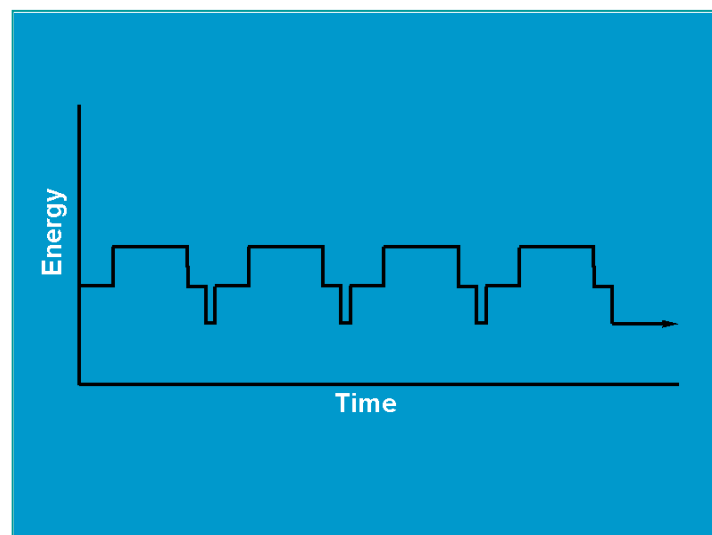
This type of charger can also help to break down dendrite growth, a contributor to the memory effect. However pulse chargers do not take into account the internal state of the battery. They merely subject the battery to a series of repetitive pulses. Some units even revert to a potentially damaging trickle charge once the battery approaches full capacity.

Benefits

- Shorter charge times
- Reduces memory effect

Drawbacks

- No feed back or control
- Repetitive charge sequence
- Poor or no conditioning process
- Long formation times
- Can require user discipline



Charge profile for pulse charger showing uniform pulse widths & height

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ACT Intelligent Charging

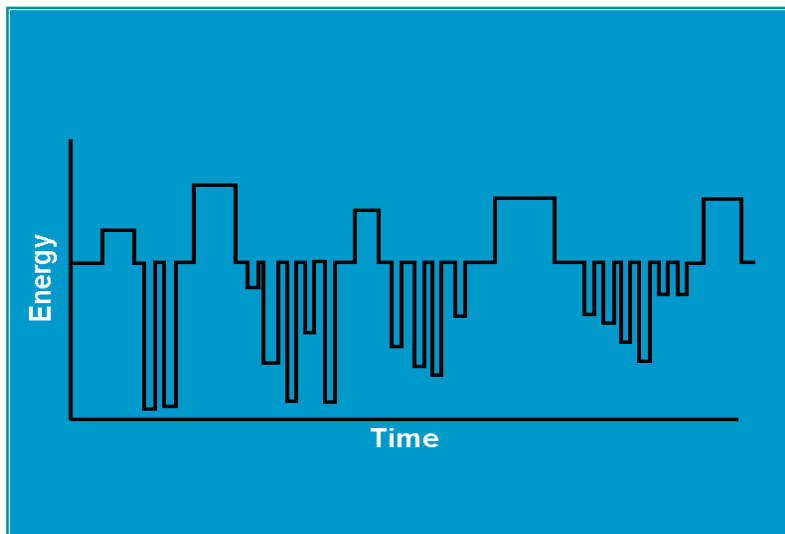
Advanced Charger Technology has invested over \$40 Million to solve the battery problems experienced by professional mobile radio users. The result is a unique, fully patented technology that actually responds to the chemical state of each battery. A charging and conditioning waveform is simultaneously applied to the battery ensuring the longest and most reliable performance possible. Another benefit of ACT's truly intelligent system is its ability to keep batteries in a charge receptive state. This translates into the world's fastest charge times. The charging and conditioning process is completely automatic and requires no intervention on the part of the user. There's no charging rules with ACT, simply put the battery on and remove it at any time.

Benefits

- Fastest possible charge times
- Conditions batteries during charge
- Exceptional battery life spans
- Elimination of memory problems
- Precise termination of charge
- Short formation times
- No user discipline required
- Reduced battery management and cost
- Reduced battery disposal costs
- Supports multiple battery types & chemistries

Drawbacks

- Initial Cost



Charge profile for ACT pulse charger showing ADAPTIVE pulse width and heights

Australia

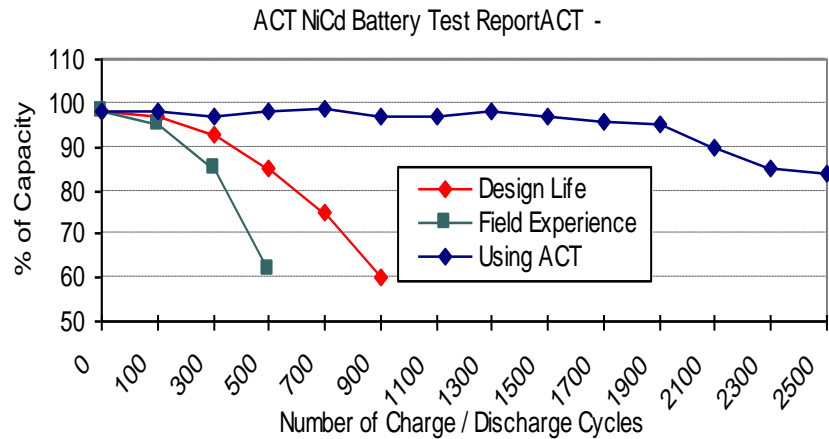
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New Zealand

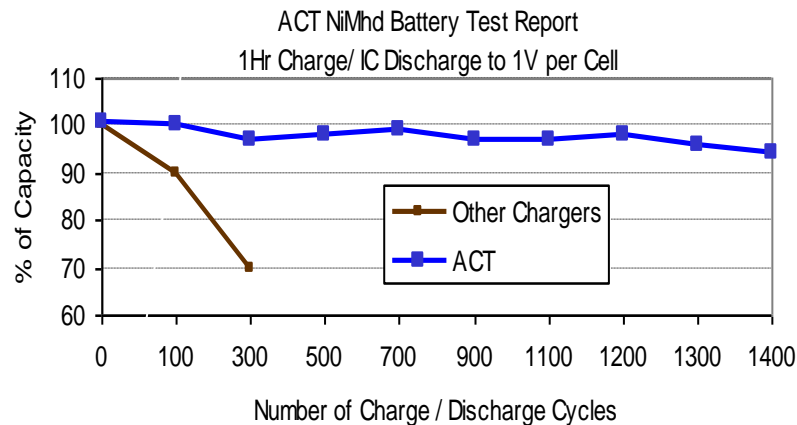
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f: 03 384 6012
e: sales@logicenergy.co.nz

Cycle Life Improvements with ACT Charging

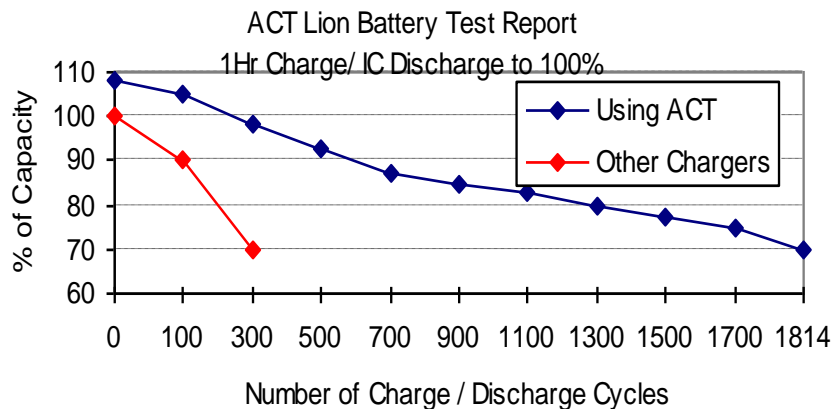
The following graphs show the cycle life gains for the 3 main battery chemistries in use in the two-way radio industry. These cycle life tests were performed by the US military in the late 1990's when evaluating ACT's patented adaptive charging. Operational use has shown a minimum gain of 2-3 times the charge cycle life compared to standard rapid charging techniques.



NiCd Batteries



NiMH Batteries



LiIon Batteries

Logic Energy Desktop Power Supply

This power supply can be used to power any mobile radio that draws less than 15A continuous DC current.

LESS-18



- 13.8 VDC Output adjustable
- 15 Amps continuous
- 18 Amps peak
- Supply voltage 115 – 220 VAC
- CE / UL approved
- Dimensions 35mm x 154mm x 230 mm
- Weight 1.65 kg

Protection Features:

- Current limiting
- Overvoltage protection
- Over temperature shutdown.

Special Features

- High efficiency switching power supply that is
- especially filtered for use with communications equipment.
- Heavy duty design
- Variable DC output voltage range (11 V to 14.8Vdc).
- Inbuilt EMI filter
- Meets FCC Class B

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Logic Energy Replacement Batteries

Logic Energy batteries enjoy a well earned reputation for performance and durability. That's because they incorporate features like matched cells from top Japanese manufacturers, gold plated contacts, premium ABS housings, and nickel plated tabs. Our batteries can be counted on to power your radio under the most demanding field conditions and are backed by our no fuss 12 month warranty.

Replacement Batteries - Examples



- Large gold plated contacts.
- Logic Energy only uses matched cells from Japan
- Internal flex PCB for reliability & performance
- High quality plastics provide durable housing



Tait Orca 5000 Series



Icom BP-232Li



Motorola XTS5000



Motorola GP328



Kenwood Nexedge NX200

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Logic Energy Replacement Batteries

	Radio Model	Chemistry	Capacity (mAh)	OEM Battery Part Number	Logic Part Number
MOTOROLA	GP300	NiCd NiMH	1200 1500	HNN9628A	BP9628UNC BP9628NiMH
	GP328 / 338 / 329 / 339	NiMH LiIon I.S	1450 2000 1700	HNN9008AR HNN9009AR HNN9013	BP9008 BP9009 BP9013 BP9010
	GP328 PLUS / 338 PLUS	LiIon	1700	JMNN4023 JMNN4024	BP4024BC
	GP900 / MTS2000 / HT1000 / PTX1200	NiMH NiMH	1500 2000	NTN7144	BP7144 BP7144NiMH
	SABER	NiCd	1500		BP4595
	XTS3000 / 5000	NiMH	2000 2700 3600	NTN8923AR	BP8299-IS BP8299MH-A BP8299MHUC-A
	MOTOTRBO	NiMH	1600		BP4065MH
ICOM	IC-F3 / F4 / F3S / F4S	NiCd NiMH	1100 1450	BP196 BP196	BP196 BP196NiMH
	IC-F11 / F21 / F30 / F40 / IC-F3GT / F4GT	NiCd NiMH LiIon	1100 1650 2000	BP209 BP210 BP211	BP209 BP210 BP211
	IC-F14 / F24 / F33 / F43 IC-F3023 / 4023 / 3063 / 4063 / IC-F31 / IC-F41	LiIon	2000	BP231 BP232	BP232Li
	IC-F50 / F60	LiIon	1800	BP227Li	BP227Li
KENWOOD	TK-260 / 270G / 370G	NiCd NiMH	1500 1800	KNB-15A KNB-20N	BP5615 BP5615MH
	TK-2140 / 3140 TK-2160 / 3160	NiMH LiIon	2000 1900	KNB-26N KNB-35L	BP5626NiMH BP5635Li
	TK 2180 / 3180	NiMH LiIon	2000 1900	KNB-32N KNB-33L	BP5632 BP5633Li
	TK 2207 / 3207	NiMH	1450	KNB-29	BP5629NiMH
	Nexedge NX200 / NX200/NX300	LiIon	1900	KNB-47L	BP5647Li
	Orca & 5000 Series	NiMH	2150	TOPB500	BPTOPB500
	TP8100 Series	LiIon	1950	TPK-BA-100	BPTPKBA100
SIMOCO	SRP8000 / 9000	NiCd NiMH	1700 2150		BPASI8000-17 BPASI8000N
VERTEX	VX-160 / VX-180 / VX-210 VX-410 / VX-420 / VX-800	NiCd NiMH LiIon	1100 2500 2000	FNB-V57 FNB-V94 FNB-V67Li	BPFNBV57 BPFNBV94 BPFNBV67Li
	VX-820/ VX-350	LiIon	2000	FNB-V87Li	BPFNBV87Li

Connector Compatibility Chart

Any Radio		
2.5mm single pin		Any radio or remote speaker microphone with an Rx 2.5mm MONO jack.
3.5mm single pin		Any radio or remote speaker microphone with an Rx 3.5mm MONO jack.

Motorola		
3.5mm Single pin threaded		Motorola Visar Series, Any Motorola Speaker Microphone with 3.5mm Screwed Stereo Jack. McKay 2TACTM. <i>Compatible with accessory adapter LE9717C, LEBDN4455, LEV1-10335</i>
GP300 two-pin		Motorola CP100, CP150, CT150, CT250, CT450, CT450LS, EP450, GP2000, GP300, GP308, GP280, GP68, GP88, GTI, GTX, LTS2000, P040, P080, P110, P1225, P1225LS, P200, PR400, PRO2150, PRO3150, SP10, SP21, SP50, XTN446, XTN500, XTN600, XV1100, XV2100, XU1100, XU2100, XU2600, VL130, VL50, GP320, GP350, GP1280, GP2000. Blackbox-V, Blackbox-U. <i>Compatible with accessory adapter LE9716C, LE9718C, LE9720C.</i>
GP328 Multipin		Motorola GP1280, GP140, GP320, GP328, GP329, GP338, GP339, GP340, GP360, GP380, GP640, GP650, GP680, HT1250, HT1250LS, HT1550, HT1550XLS, HT750, MTX8250, MTX8250LS, MTX850, MTX850LS, MTX9250, MTX950, MTX960, PRO5150, PRO5350, PRO5450, PRO5550, PRO5750, PRO7150, PRO7350, PRO7450, PRO7550, PRO7750, PRO9150, PTX700, PTX760, PTX780.
Hirose		Motorola HT600, MT1000, MTX Classic, MTX900, P200 with Adaptor NTN5598. Motorola SABER, ASTRO SABER with adaptor NTN5213 or NTN5664 key loader. <i>Compatible with accessory adapter Tait *** , LEV1-10540</i>
GP328+ Multipin		Motorola EX500, EX600, GL2000, GP328 Plus, GP338 Plus, PRO5150 elite. Relm RVP3000, RVP3600, RPU3000, RPU3600.
XTS Multipin		Motorola GP900, GP9000, HT1000, JT1000, MT2000, MTS2000, MTX8000, MTX838, MTX900, MTX9000, MTX-LS, XTS2500, XTS3000/Astro, XTS3500, XTS5000. EF Johnson 51SL, 5000, 5100, 7700 Series



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Icom		
Two-pin straight		Icom IC-F3, IC-F3S, IC-F30G, IC-F31, IC-F4, IC-F4S, IC-FF4TR, IC-F40, IC-F40S, IC-F10, IC-F20, IC-H2, IC-H6, IC-J12, IC-M5, IC-U12, IC-U16, IC-4008, IC-4088A. Maxon SL25, SL55, SP100, SP120, SP130, SP140, PL1145, PL2215, PL24125, PL2245, PL2445. Cobra Two Pin. Motorola Talkabout 200, Talkabout 250, Distance, Distance DPS. Ritron Patriot Series RTX, SST, Jobcom JMX, MBX. Vertex VX-200, VX-500, VX-510, VX-520UD. Uniden UH-040, UH-042, UH-044, UH-050, UH-052. GME TX-610, TX-6000, TX-6200, TX-7000.
Two-pin right angle		Icom IC-F3G, IC-F3GS, IC-F4G, IC-F4GS, IC-F11, IC-F11S, IC-F14, IC-F14S, IC-F15, IC-F21, IC-F21S, IC-F22, IC-F24, IC-F24S, IC-F31, IC-F33, IC-F43.
F50 Multipin		Icom IC-F30G, IC-F31G, IC-F40G, IC-F41G, IC-F50, IC-F60, IC-F70, IC-F80, IC-M88.
Two-pin two screw		Icom IC-F11, IC-F21, IC-F14, IC-F14S, IC-F24. IC-F24S, IC-F33G, IC-F43G, IC-F43TR.

Kenwood		
Two-pin		Kenwood TK-208, TK-2100, TK-2102, TK-2130, TK-220, TK-240, TK-240D, TK-248, TK-250, TK-260, TK-260G, TK-270, TK-270G, TK-308, TK-3100, TK-3101, TK-3102, TK-3130, TK-3131, TK-320, TK-340, TK-340D, TK-348, TK-350, TK-353, TK-360, TK-360G, TK-370, TK-370G, TK-372G, TK-430, TK-431, TK-2200, TK-3200, TK-3201, TK-2160, TK-3160, TK-373, TK-3173. Relm RPV516A, RPV599A, RPU416A, RPU499A.
Multipin		Kenwood TK2140, TK280, TK290, TK3140, TK-380, TK390, TK480, TK481, TK-190, TK-3180, NX200/ NX300

Vertex		
Single pin 4 way right angle		Vertex VX-10, VX-300, VXF-1, VX-410, VX-420.
Single pin single screw		Vertex VX130, VX160, VX180, VX210, VX210A, VX400, VX410, VX420.
Multipin		Vertex MH-360M, MH-450M, MH-50A7A, VH-110, VH-115M, VH-120, VH-130, VH-215M, VH-225M, VX-600, VX-800, VX-900, VX-530.

Sepura		
Single pin 4 way right angle		Sepura SRP2000, SRH3500, SRH3500sGPS, SRH3800, SRH3800sGPS.

Tait		
Orca – G **		Tait Orca 5000 Series.
Multipin		Tait TP7100/TP8100

Simoco		
Two-pin single screw		Simoco SRP-8020, SRP8030, SRP8031, SRP-9120, SRP-9030, SRP-9130.

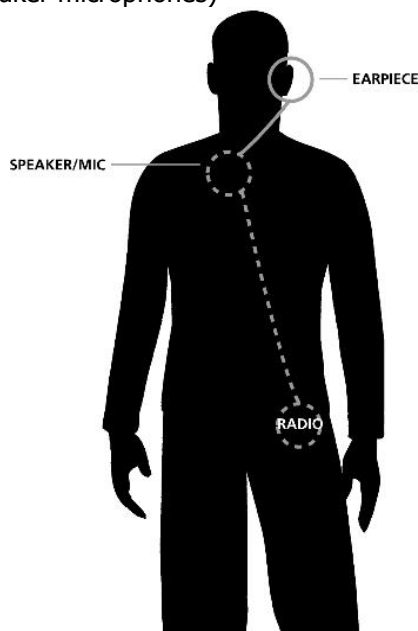
Hytera		
GP300 two-pin		Hytera TC-610, TC-700
Multipin		Hytera PD-702G, PD-782G
Multipin		Hytera X1e, X1

Listen Only Earphone Options

Commercial



- Available with 2.5 or 3.5mm single pin plug
- 3 earpiece styles - Soft D-Earhanger, Flexible Earhook & Acoustic Tube
- 2 cable options available: Long cable (for direct connect to radio) or Short curly cable (for use with speaker microphones)



D-Earhanger Earphone



Flexible Earhook Earphone



Acoustic Earphone

Professional

OTTO

Expect Excellence.

- Available with 2.5 or 3.5mm connectors
- Soft rubber D-Earhanger or
- Acoustic Tube with quick disconnect






Acoustic Earphone with Quick Disconnect





D-Earhanger Earphone


Earphones for use with Speaker Microphones


Listen Only Earphone Options

Logic Earphone Options	Connector / Cable	Logic Part #
 D-Earhanger	2.5mm / Curly Cord	LE25MMCCDEH
	3.5mm / Curly Cord	LE35MMCCDEH
	2.5mm / 90cm Straight Cord	LE25MM90DEH
	3.5mm / 90cm Straight Cord	LE35MM90DEH
 Flexible Ear-Hook	2.5mm / Curly Cord	LE25MMCCFEH
	3.5mm / Curly Cord	LE35MMCCFEH
	2.5mm / 90cm Straight Cord	LE25MM90FEH
	3.5mm / 90cm Straight Cord	LE35MM90FEH
 Acoustic Tube Earphone– quick disconnect	2.5mm / Curly Cord	LE25MMCCAT
	3.5mm / Curly Cord	LE35MMCCAT
	2.5mm / 90cm Straight Cord	LE25MM90AT
	3.5mm / 90cm Straight Cord	LE35MM90AT

OTTO Earphone Options	Connector / Cable	OTTO Part #
 Acoustic Tube Earphone– quick disconnect	2.5mm / Curly Cord	V1-10432
	3.5mm / Curly Cord	V1-10433
 D-Earhanger	2.5mm / Curly Cord	V1-EH22R131
	3.5mm / Curly Cord	V1-EH23R131


One Wire Surveillance Kits

One-Wire Speaker Earhook	Radio		Connector	Logic Part #
	Motorola	GP300	2-pin	LEGP300SEH-1W
		GP328	Multipin	LEGP328SEH-1W
		GP328 Plus	Multipin	LEGP328PSEH-1W

One-Wire Flexi-Earhook	Radio		Connector	Logic Part #
	Motorola	GP300	2-pin	LEGP300FEH-1W
		GP328	Multipin	LEGP328FEH-1W
		GP328 Plus	Multipin	LEGP328PFEH-1W
		GP328 Plus	3.5mm Threaded	LEMOT35TFEH-1W
	ICOM	IC-F11 IC-F21	2-pin Right Angle	LEICOM2PFEH-1W
		IC-F14 IC-F24	2-pin 2-screw	LEICOMFEH-1W
	Kenwood	TK2 / 3160 TK2 / 3170 TK2 / 3207	2-pin	LEKENFEH-1W
	TAIT	Orca TP7100 TP8100	GP300 2-pin requires audio adaptor *	LEGP300FEH-1W
	Vertex	VX-420 VX-350	Single pin screw	LEVERTEHFEH-1W

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio Adapter.

One-Wire D-Earhanger	Radio		Connector	Logic Part #
	Motorola	GP300	2-pin	LEGP300DEH-1W
		GP328	Multipin	LEGP328DEH-1W
		GP328 Plus	Multipin	LEGP328PDEH-1W
		GP328 Plus	3.5mm Threaded	LEMOT35TDEH-1W
	ICOM	IC-F11 IC-F21	2-pin Right Angle	LEICOM2PDEH-1W
		IC-F14 IC-F24	2-pin 2-screw	LEICOMDEH-1W
	Kenwood	TK2 / 3160 TK2 / 3170 TK2 / 3207	2-pin	LEKENDEH-1W
	TAIT	Orca TP7100 TP8100	GP300 2-pin Requires audio adaptor *	LEGP300DEH-1W
	Vertex	VX-420 VX-350	Single pin screw	LEVERTEXDEH-1W

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio

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Two Wire Surveillance Kits

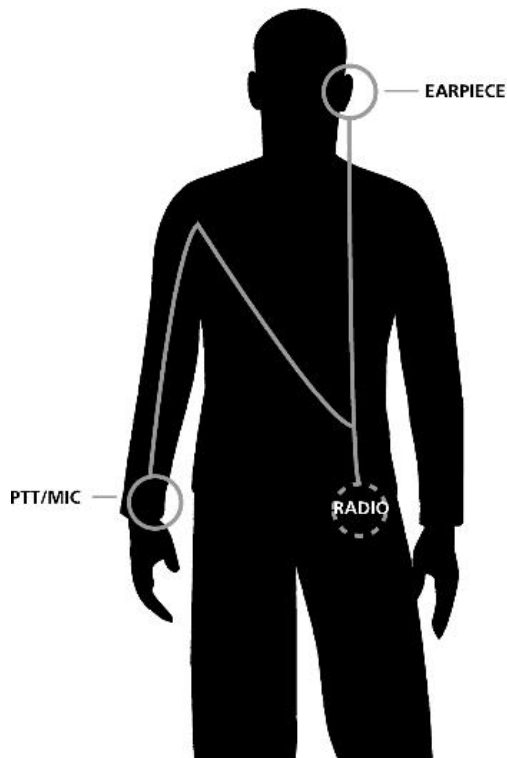
Logic Energy provide two tiers of Two Wire Kit; 1. Logic **Commercial** Grade Kits which are ideal for security companies, film crew, hotel staff; 2. OTTO **Professional** Grade Kits which set the standard in durability, reliability and performance. Maintain high-clarity, two-way radio transmissions that are unnoticed by others around you.

Commercial Grade

Commercial Two Wire Kit



- Combined microphone & PTT module
- Separate earpiece options as follows: Acoustic tube, Flexible Earhook or D-Earhanger.
- All three kit options use rugged Kevlar re-enforced cabling and heavy duty strain reliefs.



Acoustic Kit: AT



Flexible Earhook Kit: FEH



D-Earhanger Earphone Kit: DEH

Professional Grade

Professional Two Wire Kit

OTTO
Expect Excellence.

- Quick disconnect earphone adapter for easy replacement of any one component
- Low-profile, flexible, transparent acoustic tube
- Flexible, high-grade cable for demanding applications



Otto 2-Wire Kit: Otto V1 Kit


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Two Wire Surveillance Kits

Acoustic Tube	Radio		Connector	Logic Part #	OTTO Part #
	Motorola	GP300	2-pin	LEGP300AT-2W	V1-10176
		GP328	Multipin	LEGP328AT-2W	V1-10669
		GP328 Plus	Multipin	LEGP328PAT-2W	V1-10778
		GP328 Plus	3.5mm Threaded	LEMOT35TAT-2W	V1-10172
		XTS5000	Hirose	LEHIROSEAT-2W	V1-10166
		Moto-TRBO	Multipin	LETRBOAT-2W	V1-11027
	ICOM	IC-F14 IC-F24 IC-F3023/4023	2-pin 2-screw	LEICOMAT-2W	V1-10756
		IC-F3163-F4163	Multipin	LEICOMMPAT-2W	
	Kenwood	TK2/ 3170 TK2/ 3207	2-pin	LEKENAT-2W	V1-10267
		TK2/ 3140 TK2/ 3180 NX200/300	Multipin	LEKENMPAT-2W	V1-10695
	TAIT	Orca TP7100 TP8100	GP300 2-pin requires audio adaptor*	LEGP300AT-2W	V1-10176
	Vertex	VX-420 VX-350	Single pin screw	LEVERTEXAT-2W	V1-10617
		VX-820/VX-920	Multipin	LEVERTEXMPAT-2W	V1-10815
	Hytera	TC-610 TC-700	GP300 2-Pin	LEGP300AT-2W LEGP300AT-2W	

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio Adapter.

Two-Wire Flexible Earhook	Radio		Connector	Logic Part #
	Motorola	GP300	2-pin	LEGP300FEH-2W
		GP328	Multipin	LEGP328FEH-2W
		GP328 Plus	Multipin	LEGP328PFEH-2W
		GP328 Plus	3.5mm Threaded	LEMOT35TFEH-2W
		Moto-TRBO	Multipin	LETRBOFEH-2W
	ICOM	IC-F14 IC-F24 IC-F3023/4023	2-pin 2-screw	LEICOMFEH-2W
		IC-F3163/F4163	Multipin	LEICOMMPFEH-2W
	Kenwood	TK2 / 3170 TK2 / 3207	2-pin	LEKENFEH-2W
		TK2/ 3140 TK2/ 3180 NX200/300	Multipin	LEKENMPFEH-2W
	TAIT	Orca TP7100 TP8100	GP300 2-pin Requires audio adaptor*	LEGP300FEH-2W
	Vertex	VX-420 VX-350	Single pin screw	LEVERTEXFEH-2W
		VX-820/VX-920	Multipin	LEVERTEXMPFEH-2W
	Hytera	TC-610 TC-700	GP300 2-Pin	LEGP300FEH-2W

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio Adapter


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Two Wire Surveillance Kits

Two-Wire D-Earhanger	Radio		Connector	Logic Part #
	Motorola	GP300	2-pin	LEGP300DEH-2W
		GP328	Multipin	LEGP328DEH-2W
		GP328 Plus	Multipin	LEGP328PDEH-2W
		GP328 Plus	3.5mm Threaded	LEMOT35TDEH-2W
		Moto-TRBO	Multipin	LETRBODEH-2W
	ICOM	IC-F14 IC-F24 IC-F3023/4023	2-pin 2-screw	LEICOMDEH-2W
		IC-F3163/F4163	Multipin	LEICOMMPDEH-2W
	Kenwood	TK2 / 3170 TK2 / 3207	2-pin	LEKENDEH-2W
		TK2/ 3140 TK2/ 3180 NX200/300	Multipin	LEKENMPDEH-2W
	TAIT	Orca TP7100 TP8100	GP300 2-pin Requires audio adaptor*	LEGP300DEH-2W
	Vertex	VX-420 VX-350	Single pin screw	LEVERTEXDEH-2W
		VX-820/VX-920	Multipin	LEVERTEXMPDEH-2W
	Hytera	TC-610 TC-700	GP300 2-Pin	LEGP300DEH-2W

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio Adapter.

Three Wire Surveillance Kit

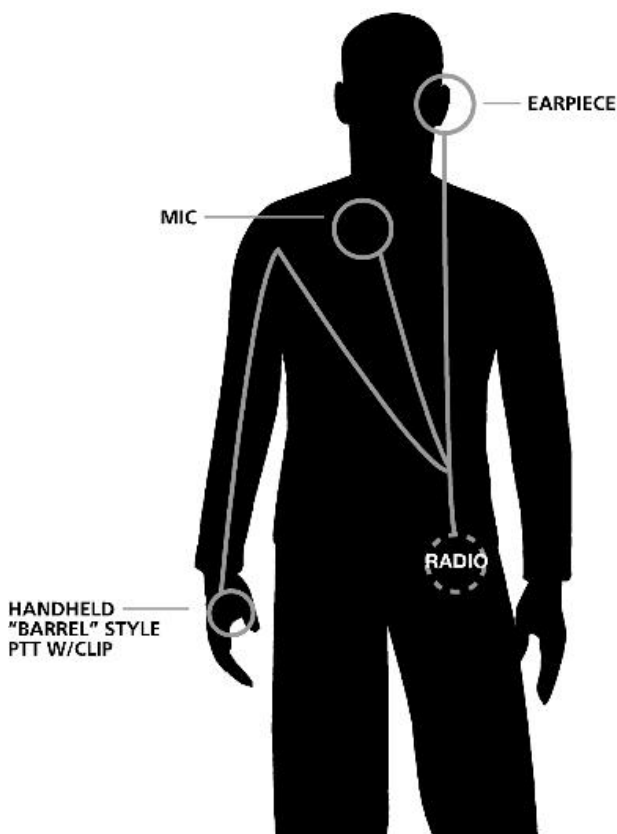
Logic Energy supplies high grade Three Wire Kits for use by professional users with-in the public safety and covert communications sector. These kits can be combined with wireless ear piece options to provide true covert communications.

Professional Grade

OTTO Three Wire Kit

OTTO
Expect Excellence.

- Lightweight earphone, rubber ear-tip, radio connector and clothing clip
- Quick disconnect earphone adapter for easy replacement of any one component
- Low-profile, flexible, transparent acoustic tube
- Flexible, high-grade cable for demanding applications



Quick Disconnect Assembly

OTTO Surveillance Earpiece Options



Flexible Ear Insert



Acoustic Tube with noise attenuating plugs


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Three Wire Surveillance Kits

Three-Wire Acoustic Tube Kit	Radio		Connector	OTTO Part #
	Motorola	GP300	2-pin	V1-10284
		GP328	Multipin	V1-10710
		GP328 Plus	Multipin	V1-10779
		GP328 Plus XTS5000	3.5mm Threaded With adaptor	V1-10170
		XTS5000	Hirose	V1-10164
	ICOM	IC-F14 IC-F24	2-pin 2-screw	V1-10757
	Kenwood	TK2/ 3170 TK2/ 3207	2-pin	V1-10265
		TK2/ 3140 TK2/ 3180	Multipin	V1-10357
	TAIT	Orca TP7100 TP8100	2-pin With audio adaptor *	V1-10284
	Vertex	VX-420 VX-350	Single pin screw	V1-10618
		VX-820	Multipin	V1-10817

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio Adapter.

Commercial Speaker Microphones

Logic Energy provides two tiers of Commercial Speaker Microphones. These two tiers are ideal for security companies, film crew, hotel staff, light construction workers and factory or warehouse users. The standard Speaker Microphone is now IP54 rated. The Noise Cancelling microphone is ideal for noisy factory environments where the users need to be heard clearly.

Commercial Grade

- 3.5mm Earphone Jack
- Environmental PU cable with Kevlar re-enforcement
- Heavy duty strain relief
- Replaceable belt clips
- IP54 Rated – Dust protected and protected from splashing water from any direction.



Noise Cancelling Speaker Microphone

Now IP54 Rated



Commercial Earphone Options – for use with Remote Speaker Microphones



Acoustic Earphone



Flexible Ear-hook Earphone



D-Earhanger Earphone

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Commercial Speaker Microphones

Standard Speaker Microphone	Radio		Connector	Part #
	Motorola	GP300*	2-pin	LEGP300RSM
		GP328*	Multipin	LEGP328RSM
		GP328 Plus	Multipin	LEGP328PRSM
		Moto-TRBO*	Multipin	LETRBORSM
	ICOM	IC-F11 IC-F21	2-pin Right Angle	LEICOM2PRSM
		IC-F3163/4163	Multipin	LEICOMMPRSM
		IC-F14 IC-F24	2-pin 2-screw	LEICOMRSM
	Kenwood	TK2/ 3170* TK2/ 3207	2-pin	LEKENRSM
		NX200/300	Multipin	LEKENMPRSM
	TAIT	Orca	2-pin With audio adaptor *	LEGP300RSM
		TP7100 TP8100	Multipin	LETPRSM
	Vertex	VX-420 VX-350	Single pin screw	LEVERTEXRSM
	Hytera	TC-610 TC-700	2-pin	LEH2PRSM

Noise Cancelling	Radio		Connector	Part #
	Motorola	GP300	2-pin	LEGP300RSM-NC
		GP328	Multipin	LEGP328RSM-NC
		GP328 Plus	Multipin	LEGP328PRSM-NC
		Moto-TRBO	Multipin	LETRBORSM-NC
	ICOM	IC-F11 IC-F21	2-pin Right Angle	LEICOM2PRSM-NC
		IC-F14 IC-F24	2-pin 2-screw	LEICOMRSM-NC
	Kenwood	TK2/ 3170 TK2/ 3207	2-pin	LEKENRSM-NC
	TAIT	Orca TP7100 TP8100	GP300 2-pin With audio adaptor *	LEGP300RSM-NC
	Vertex	VX-420 VX-350	Single pin screw	LEVERTEXRSM-NC
	Hytera	TC-610 TC-700	GP300 2-pin	LEGP300RSM-NC

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio Adapter.

* IP54 Rated

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Please note we are able to source other Commercial Speaker Microphones on request eg: Simoco

Logic Earphone Options	Connector / Cable	Part #
Acoustic Tube Earphone– quick disconnect	2.5mm / Curly Cord	LE25MMCCAT
	3.5mm / Curly Cord	LE35MMCCAT
Flexible Ear-Hook	2.5mm / Curly Cord	LE25MMCCFEH
	3.5mm / Curly Cord	LE35MMCCFEH
D-Earhanger	2.5mm / Curly Cord	LE25MMCCDEH
	3.5mm / Curly Cord	LE35MMCCDEH

Professional Speaker Microphones

OTTO's professional grade speaker microphones are designed to be used in the harshest of environments. Both Profile and Evolution microphones have been designed to exceed MIL810 specifications and are sealed to IP54 rating making them ideal for public safety officials, for construction site foremen or plant engineers to relay instructions clearly.

Professional Grade

- **2.5mm** Earphone Jack
- Profile and Evolution rated IP54
- Both options meet MIL810 specifications
- Environmental PU cable with Kevlar re-enforcement
- Heavy duty strain relief
- Replaceable belt clips
- Evolution also has Hi/ Lo volume control



OTTO Profile Speaker Microphone

OTTO
Expect Excellence.

OTTO Evolution Speaker Microphone



OTTO Earphone Options



Acoustic Earphone



D-Earhanger Earphone

Professional Speaker Microphones

Profile Speaker Microphone	Radio		Connector	OTTO Part #
	Motorola	GP300	2-pin	V2-L2MG11
		GP328	Multipin	V2-L2MJ11
		GP328 Plus	Multipin	V2-L2MM11
		XTS5000	Multipin	V2-L2MA11
	ICOM	IC-F11	2-pin Right Angle	V2-L2CC11
		IC-F21		
		IC-F14	2-pin 2-screw	V2-L2CS11
		IC-F24		
	Kenwood	IC-F50/ 60	Multipin	V2-L2CM11
		TK2/ 3170	2-pin	V2-L2KA11
		TK2/ 3207		
		TK2/ 3140	Multipin	V2-L2KB11
	TAIT	Orca	2-pin	V2-L2MG11
		TP7100	With audio adaptor*	
	Vertex	TP8100		
		VX-420	Single pin screw	V2-L2VD11
		VX-350		
		VX-820	Multipin	V2-L2VJ11
Evolution Speaker Microphone	Radio		Connector	OTTO Part #
	Motorola	GP300	2-pin	V2-10026
		GP328	Multipin	V2-10228
		GP328 Plus	Multipin	V2-10295
		XTS5000	Multipin	V2-10031
		XTS5000	Multipin	V2-10286 (emergency button)
	ICOM	IC-F11	2-pin Right Angle	V2-10200
		IC-F21		
		IC-F14	2-pin 2-screw	V2-10288
		IC-F24		
	Kenwood	IC-F50/ 60	Multipin	V2-10314
		TK2/ 3170	2-pin	V2-10030
		TK2/ 3207		
		TK2/ 3140	Multipin	V2-10068
	TAIT	TK2/ 3180		
		Orca	2-pin	V2-10026
	Vertex	TP7100	With audio adaptor*	
		TP8100		
		VX-420	Single pin screw	V2-10169
		VX-350		
		VX-820	Multipin	V2-10318

*Audio Adapter for Tait Orca is TOPA-AA-005 or 005G.

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 further Audio Adapter details.

OTTO Earphone Options	Connector / Cable	OTTO Part #
Acoustic Tube Earphone– quick disconnect	2.5mm / Curly Cord	V1-10432
	3.5mm / Curly Cord	V1-10433
D-Earhanger	2.5mm / Curly Cord	V1-EH22R131
	3.5mm / Curly Cord	V1-EH23R131

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Waterproof Speaker Microphones

Logic supplies two fully immersion rated speaker microphones designed to withstand prolonged exposure to water and temperature extremes. The IP68 rating also provides excellent protection against dirt and dust and allow for the microphones to be washed without affecting performance.

These units are designed for rugged environments including Public Safety Markets (police, fire and EMT services), maritime law enforcement, heavy-duty manufacturing and any other environment with harsh conditions.

Waterproof Speaker Microphone

- Waterproof - Immersion rated for 2 meters for 1 hour
- Waterproof Hirose accessory connector available on some models
- Self Draining Speaker Compartment - flush accumulated dirt and grime away with tap water
- Huge Mylar Speaker – exceptional audio quality and impervious to water damage
- Extra Large Belt Clip - Spring-loaded for secure attachment to uniforms



Logic Waterproof Speaker Microphone

Waterproof Speaker Microphone


OTTO
Expect Excellence.

- One meter Immersion rating IP68 (Mil- 810), 31 minutes with the earphone jack seal closed
- Larger push-to-talk (PTT) with positive tactile feedback
- Push-button volume control
- Earphone jack
- Contoured design for easy handling
- Field-replaceable belt clip
- Lightweight for easy wearing



OTTO Storm Speaker Microphone


Waterproof Speaker Microphones

Logic IP68 Speaker Microphone	Radio		Connector	Logic Part #
	Motorola	GP300	2-pin	LEGP300RSM-H2O
		GP328	Multipin	LEGP328RSM-H2O
		GP328 Plus	Multipin	LEGP328PRSM-H2O
		XTS5000	Multipin	LEXTSRSM-H2O
	ICOM	IC-F11 IC-F21	2-pin Right Angle	LEICOM2PRSM-H2O
		IC-F14 IC-F24	2-pin 2-screw	LEICOMRSM-H2O
		IC-F50/ 60	Multipin	LEICOMF50RSM-H2O
	Kenwood	TK2/ 3170 TK2/ 3207	2-pin	LEKENRSM-H2O
	TAIT	Orca TP7100 TP8100	2-pin With audio adaptor *	LEGP300RSM-H2O
	Vertex	VX-420 VX-350	Single pin 2-screw	LEVERTEXRSM-H2O

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 58 for further information on Audio Adapter.

Please note these audio adapters are not waterproof

OTTO Storm Speaker Microphone	Radio		Connector	OTTO Part #
	Motorola	GP328	Multipin	V2-S2MJ11111
		GP328 Plus	Multipin	V2-S2MM11111
		XTS5000	Multipin	V2-S2MA11111
	ICOM	IC-F14 IC-F24	2-pin 2-screw	V2-S2CS11111
		IC-F50/ 60	Multipin	V2-S2CM11111
	Kenwood	TK2/ 3170 TK2/ 3207	2-pin	V2-S2KA11111
		TK2/ 3140 TK2/ 3180	Multipin	V2-S2KB11111
	Vertex	VX-420 VX-350	Single pin 2-screw	V2-S2VD11111
		VX-820	Multipin	V2-S2VJ11111

OTTO Storm options are available which add LED and Emergency button functionality are available for some radio models – please contact us for availability

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IP Rating Explained

Protected Against Dangerous Access and Solid Foreign Objects	Index A	Index B	Protected against Water Penetration
Non Protected	0	0	Non Protected
Protected against solid objects 50mm or more	1	1	Protected Against vertically falling water drops
Protected against solid objects 12.5mm or more	2	2	Protected against vertically falling water drops when enclosure tilted up to 15 degrees
Protected against solid objects 2.5mm or more.	3	3	Protected against spraying water up to 60 degrees vertical
Protected against solid objects 1mm or more	4	4	Protected against splashing water from any direction
Dust protected	5	5	Protected against jets of water from any direction
Dust tight	6	6	Protected against powerful jets of water direction from any direction
		7	Protected against immersion
		8	Protected against continuous immersion

IP54 – Dust protected and water splashing from any direction. Our Logic Commercial Speaker Microphone is IP54 Rated. Please refer to page 41.

IP68 = The highest IP (Ingress Protection) rating possible – Dust tight and protected against continuous immersion. Our Logic Waterproof Speaker Microphone is IP68 rated. Please refer to page 45.

Lightweight Headsets

OTTO sets the standard in performance, reliability and durability for lightweight headsets. These headsets allow for high-clarity, discrete two-way radio communications while providing the additional comfort necessary for extended wear.

These headsets are compatible with a most radio makes and models, which makes Otto's lightweight headsets perfect for continuous use in many markets. These include: Hospitality, Retail, Recreation, Public Safety, restaurant and other hospitality staff, movie crews and others in the entertainment industry, retail sales personnel, and many others working in active, moderate-noise environments.

Professional Grade

OTTO
Expect Excellence.

- Behind-the-head style with single left earphone
- Designed for extended wear in active environments
- Ultra Lightweight frame for superior comfort and fit
- Flexible, electret boom microphone with replaceable windscreen



Breeze Headset

Professional Grade

OTTO
Expect Excellence.

- Flexible, electret boom mic with replaceable windscreen
- Comfortable, adjustable foam cushion headband
- Fully rotating boom microphone for left or right side positioning
- Replaceable foam ear cushions with optional cloth covers



Lightweight Headset


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Lightweight Headsets

Breeze Lightweight Headset	Radio		Connector	OTTO Part #
	Motorola	GP300	2-pin	V4-BA2MG1
		GP328	Multipin	V4-BA2MJ5 (mini PTT)
		GP328 Plus	Multipin	V4-BA2MM5 (mini PTT)
		GP328 Plus	3.5mm Threaded	V4-BA2MA1
		XTS5000	Hirose	V4-BA2MD1
		Moto TRBO	Multipin	V4-BA2MF3B
	ICOM	IC-F11 IC-F21	2-pin Right Angle	V4-BA2CC1
		IC-F14 IC-F24	2-pin 2-screw	V4-BA2CS1
	Kenwood	TK2/ 3170 TK2/ 3207	2-pin	V4-BA2KA1
		TK2/ 3140 TK2/ 3180 NX200/300	Multipin	V4-BA2KB1
	TAIT	Orca TP7100 TP8100	GP300 2-pin With audio adaptor *	V4-BA2MG1
	Vertex	VX-420 VX-350	Single pin screw	V4-BA2VD1
		VX-820	Multipin	V4-BA2VJ5 (mini PTT)
	Hytera	TC-610 TC-700	GP300 2-pin	V4-BA2MG1

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio Adapter.

Lightweight Headsets

Lightweight Headset	Radio		Connector	OTTO Part #
	Motorola	GP300	2-pin	V4-10053
		GP328	Multipin	V4-10433 (no PTT)
		GP328 Plus	Multipin	V4-10494
		GP328 Plus	3.5mm Threaded	V4-10050
		XTS5000	Hirose	V4-10190
		Moto TRBO	Multipin	V4-10692
	ICOM	IC-F11 IC-F21	2-pin Right Angle	V4-10393
		IC-F14 IC-F24	2-pin 2-screw	V4-10479
	Kenwood	TK2/ 3170 TK2/ 3207	2-pin	V4-10055
		TK2/ 3140 TK2/ 3180 NX200/300	Multipin	V4-10076
	TAIT	Orca TP7100 TP8100	GP300 2-pin With audio adaptor *	V4-10053
	Vertex	VX-420 VX-350	Single pin screw	V4-10407
		VX-820	Multipin	V4-10521
	Hytera	TC-610 TC-700	GP300 2-pin	V4-10053
		PD-702G PD-782G	Multipin	LEHYTLWH

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio Adapter.

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Heavy Duty Over-the-Head Headsets

Heavy-duty headsets offer high clarity sound and additional hearing protection necessary for consistent, clear communication in high noise environments. Perfect for use by manufacturing plant engineers, industrial processing technicians, construction teams, airport personnel, racing crews or anyone in a high noise environment.

ClearTrak Extreme Noise Cancelling Headset

The ClearTrak headsets offer high clarity sound and additional hearing protection necessary for consistent, clear communication in very high noise environments.

Commercial Grade

- Certified noise reduction of 24dB
- Flexible, noise-cancelling, boom microphone with replaceable windscreen
- Comfortable ear seals
- PTT on earcup
- Full range of replacement parts available

Over-the-Head



Professional Grade

OTTO
Expect Excellence.

- Certified noise reduction of 24dB
- 3dB Noise cancelling microphone
- Flexible, noise-cancelling, boom microphone with replaceable windscreen
- Comfortable, cloth-covered ear seals
- Fully rotating boom mic for left or right side positioning

OTTO Over-the-Head



Professional Grade

- Heavy-duty headset with certified noise reduction rating(NRR) of 24dB
- Built with an extreme noise-canceling (**19dB**) microphone
- PTT switch located on the earcup
- Flexible, heavy-duty coil cord
- Full range of replacement parts available

OTTO Cleartrak Over-the-Head



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Heavy Duty Over-the-Head Headsets

Commercial Over-the-Head Headset	Radio		Connector	Logic Part #
	Motorola	GP300	2-pin	LEGP300HDHS
		GP328	Multipin	LEGP328HDHS
		GP328 Plus	3.5mm Threaded	LEMOT35THDHS
		Moto TRBO	Multipin	LEMOT0THDHS
	ICOM	IC-F11 IC-F21	2-pin Right Angle	LEICOM2PHDHS
		IC-F14 IC-F24	2-pin 2-screw	LEICOMHDHS
		IC-F31-F41	Multipin	LEICOMMPHDHS
	Kenwood	TK2/ 3170 TK2/ 3207	2-pin	LEKENHDHS
		TK3140/3180 NX200/300	Multipin	LEKENMPHDHS
	TAIT	Orca TP7100 TP8100	GP300 2-pin With audio adaptor*	LEGP300HDHS
		Vertex VX-420 VX-350	Single pin screw	LEVERTEXDHS
	Hytera	TC-610 TC-700	GP300 2-pin	LEGP300HDHS
		PD-702G PD-782G	Multipin	LEHYTHDHS

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio Adapter.


Heavy Duty Over-the-Head Headsets

Professional Over-the-Head Headset	Radio		Connector	OTTO Part #
	Motorola	GP300	2-pin	V4-10146
		GP328	Multipin	V4-10430
		GP328 Plus	3.5mm Threaded	V4-10145
		XTS5000	Hirose	V4-10148
		Moto TRBO	Multipin	V4-10693
	ICOM	IC-F11 IC-F21	2-pin Right Angle	V4-10394
		IC-F14 IC-F24 IC-F31/F41	2-pin 2-screw	V4-10480
	Kenwood	TK2/ 3170 TK2/ 3207	2-pin	V4-10018
		TK2/ 3140 TK2/ 3180 NX200/300	Multipin	V4-10080
	TAIT	Orca TP7100 TP8100	GP300 2-pin With audio adaptor *	V4-10146
	Vertex	VX-420 VX-350	Single pin screw	V4-10404
		VX-820	Multipin	V4-10519
	Hytera	TC-610 TC-700	GP300 2-pin	V4-10146
		PD-702G PD-782G	Multipin	LEHYTPHDH

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio Adapter.

Heavy Duty Over-the-Head Headsets

ClearTrak Over-the-Head Headset	Radio		Connector	OTTO Part #
	Motorola	GP300	2-pin	V4-10390
		GP328 Plus	3.5mm Threaded	V4-10364
	Kenwood	TK2/ 3170 TK2/ 3207	2-pin	V4-10413
		TK2/ 3140 TK2/ 3180 NX200/300	Multipin	V4-10415
	TAIT	Orca TP7100 TP8100	GP300 2-pin With audio adaptor *	V4-10390
		Hytera TC-610 TC-700	GP300 2-pin	V4-10390

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio Adapter.

Heavy Duty Behind-the-Head Headsets

Standard Noise Cancelling Headset

The OTTO heavy-duty headsets offer high clarity sound and additional hearing protection necessary for consistent, clear communication in high noise environments. Perfect for use by manufacturing plant engineers, industrial processing technicians, construction teams, airport personnel, racing crews or anyone in a high noise environment.

ClearTrak Extreme Noise Cancelling Headset

The ClearTrak headsets offer high clarity sound and additional hearing protection necessary for consistent, clear communication in very high noise environments. The ClearTrak headset provides racing pit crews, driving teams and racetrack management with clear consistent communications for the entire race day.

Standard Noise Cancelling Headset



- Certified noise reduction of 24dB
- 3dB Noise cancelling microphone
- Flexible, noise-cancelling, boom microphone with replaceable windscreen
- Comfortable, cloth-covered ear seals
- Full range of replacement parts available



OTTO Behind-the-Head

ClearTrak Extreme Noise Cancelling

- Heavy-duty headset with certified noise reduction rating(NRR) of 24dB
- Built with an extreme noise-canceling (**19dB**) microphone
- PTT switch located on the earcup
- Flexible, heavy-duty coil cord
- Full range of replacement parts available



OTTO Cleartrak Behind-the-Head


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Heavy Duty Behind-the-Head Headsets

Behind-the-Head Headset	Radio		Connector	OTTO Part #
	Motorola	GP300	2-pin	V4-10003
		GP328	Multipin	V4-10431
		GP328 Plus	Multipin	V4-10570
		GP328 Plus	3.5mm Threaded	V4-10002
		XTS5000	Hirose	V4-10001
		Moto TRBO	Multipin	V4-10694
	ICOM	IC-F11 IC-F21	2-pin Right Angle	V4-10395
		IC-F14 IC-F24	2-pin 2-screw	V4-10481
		IC-F50/ 60 ICF31/F41	Multipin	V4-10516
	Kenwood	TK2/ 3170 TK2/ 3207	2-pin	V4-10019
		TK2/ 3140 TK2/ 3180 NX200/300	Multipin	V4-10081
	TAIT	Orca TP7100 TP8100	GP300 2-pin With audio adaptor *	V4-10003
	Vertex	VX-420 VX-350	Single pin screw	V4-10405
		VX-820	Multipin	V4-10523
	Hytera	TC-610 TC-700	GP300 2-pin	V4-10003
		PD-702G PD-782G	Multipin	LEHYTBHHS

Heavy Duty Behind-the-Head Headsets

ClearTrak Behind-the-Head Headset	Radio		Connector	OTTO Part #
	Motorola	GP300	2-pin	V4-10047
		GP328 Plus	3.5mm Threaded	V4-10024
		XTS5000	Hirose	V4-10455
	Kenwood	TK2/ 3170 TK2/ 3207	2-pin	V4-10025
		TK2/ 3140 TK2/ 3180 NX200/300	Multipin	V4-10388
	TAIT	Orca TP7100 TP8100	GP300 2-pin With audio adaptor *	V4-10047
	Vertex	VX-420 VX-350	Single pin screw	V4-10406
	Hytera	TC-610 TC-700	GP300 2-pin	V4-10047

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio Adapter.

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Hardhat Attach Heavy Duty Headsets

Logic Energy's hardhat attach headsets have been developed in close collaboration with end users (off-shore oil) and are manufactured in Scandinavia. Using the latest technology, these headsets provide excellent hearing protection and communications, combined with high durability to meet the demands of the most extreme environments.

Commercial Grade

- Connects directly to most two-way radios
- Lighter weight noise cancelling headset option
- Padded headband and soft cushions provides high comfort.
- Quick positioning noise cancelling boom microphone for clear communications even in noisy areas
- Features integrated PTT on earcup with straight radio download.
- Weight: 292g

Hardhat Attach Headset



Please Note: We can also source alternative Hardhat Attach Headsets and Accessories should the above not meet your requirements. To we are happy to help provide a solution that will cater to your needs.


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Hardhat Attach Headsets

Commercial Hardhat Attach Headset	Radio		Connector	Logic Part #
	Motorola	GP300	2-pin	LEGP300HDHH
		GP328	Multipin	LEGP328HDHH
		GP328 Plus	3.5mm Threaded	LEMOT35THDHH
		MotoTRBO	Multipin	LEMOTOTRBOHDHH
	ICOM	IC-F11 IC-F21	2-pin Right Angle	LEICOM2PHDHH
		IC-F14 IC-F24	2-pin 2-screw	LEICOMHDHH
		IC-F31/41	Multipin	LEICOMMPHDHH
	Kenwood	TK2/ 3170 TK2/ 3207	2-pin	LEKENHDHH
		TK3140/3180 NX200/300	Multipin	LEKENMPHDHH
	TAIT	Orca TP7100 TP8100	GP300 2-pin With audio adaptor *	LEGP300HDHH
	Vertex	VX-420 VX-350	Single pin screw	LEVERTEXHDHH
		VX-820/920	Multipin	LEVERTEXMPHDHH
	Hytera	TC-610 TC-700	GP300 2-pin	LEGP300HDHH
		PD-702G PD-782G	Multipin	LEHYTHDHH

*Audio Adapter for Tait Orca is TOPA-AA-005 or TOPA-AA-005G

*Audio Adapter for TP7100/TP8100 is LE9720C. Please see page 63 for further information on Audio Adapter.

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Ear-Defender & Receive Only Communications Kits

Features

Ear Defender Communications Kit



- Single Speaker Earmuff Upgrade Kit
- Simple upgrade kit for existing Ear Defenders
- Designed to be plugged into remote speaker microphone (Listen Only socket)
- A single hole needs to be drilled in the bottom of existing or new ear defenders – Cable Gland supplied
- Comes with curly cord cable - 2.5mm or 3.5mm right angle plug



Ear Defender Communication Kit



Receive Only Speaker

Ear-Defender Kit	Logic Part #
2.5mm Connector & Curly Cord	LEEDKIT25MM
3.5mm Connector & Curly Cord	LEEDKIT35MM
Receive Only Speaker	Logic Part #
Receive Only Velcro Flat Speaker with 3.5mm plug	LEMHS-RX

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Audio Adapters

Audio adapters allow users to swap audio accessories without having to upgrade the complete accessory.

Radio	Description	Product Code
Motorola		
	GP328+ adapter allows user to connect a 3.5mm accessory	LEBDN4455
	GP328+ adapter allows user to connect a 2-Pin (GP300) accessory	LE9718C
	GP328 adapter allows user to connect to a 2-Pin GP300 accessory	LE9716C
	GP328 adapter allows user to connect to a 3.5mm threaded accessory	LE9717C
	Motorola XTS adapter allows user to connect to a 3.5mm threaded Accessory (PTT on Adapter)	LEV1-10335
	Motorola XTS adapter allows user to connect to a 6 Pin Hirose Accessory	LEV1-10540
	Motorola 6 Pin Hirose allows user to connect to 2-Pin (GP300) Accessory	LEV1-10895
Tait		
	TP7000 / TP8000 adapter allows user to connect a 2-Pin (GP300) accessory	LE9720C
	Orca Two-Pin Adapter	TOPA-AA-005
	Orca Two-Pin Adapter (Green chassis)	TOPA-AA-005G
Icom		
	F50/60 adapter allows user to connect to a 2-Pin (GP300) accessory	LEMRC-I2-S(R)

Earphone Spares

Logic Earphone Spares	Description	Logic Part #
	Soft Rubber Eartips – Pack of 10	LEEB-10
	Spare Acoustic Tube / Eartip – Pack of 5 (please note this tube does not fit Otto acoustic earphone)	LEQDAT-5
 Other sizes available on request	Flexible Ear Insert – Left, Medium	LEEAC-EFI-ML
	Flexible Ear Insert – Right, Medium	LEEAC-EFI-MR
	Foam Ear Bud Replacement Cover For Flexi Ear Hooks (single unit)	LEEAC-ESP-B

OTTO Earphone Spares	Description	Logic Part #
	Soft Rubber Eartips – Pack of 10 (use Logic part #)	LEEB-10
	Spare Acoustic Tube / Eartip – Pack of 5	LEC101199-05
	Noise Attenuating Plugs (NRR 25dB)	LEC100733
	Flexible Ear Insert – Left, Medium	LEC806573-LM
	Flexible Ear Insert – Right, Medium	LEC806573-RM
	Otto Foam Ear Bud Replacement Cover For Flexi Ear Hooks (Pack of ten)	LEC801601-10

Bluetooth Headsets

Logic Energy Bluetooth headsets allow wireless communication with your mobile phone whilst you carry you're your work, even when working in noisy environments.

The Headsets work with Bluetooth enabled cell phones and can operate up to 10metres from mobiles phone. Also noise cancelling boom microphone filters any back noise. Automatic switch eliminates the risk of accidentally drowning the battery.

These wireless headsets are available in over the head and helmet attached options.

Features

Bluetooth Over-the-Head



- Headsets works up to 10m from phone
- Headset works on most Bluetooth enables phone
- Noise cancelling boom microphone ensures speech clarity and filters background noise.
- Automatic switch off saves battery life.
- Available in over the head and helmet attached options.



Specifications

Bluetooth Helmet Attach

Range	up to 10m from cellphone
Communication	Bluetooth



Full Duplex Wireless Headsets	Logic Part #
Over-the-head Headset	LEBTHDHS
Helmet Attach Headset	LEBTHDHH

Please note: this headset needs to be paired to a second headset for full duplex communications. This headset is not designed to be used in-conjunction with a two-way radio.

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Temco Commercial VOX Solution



This solution allows for true hands-free voice activated two way radio communications. The Voiceducer ear microphone picks up bone conduction sound vibration from the vocal chords in the external auditory canal and converts it into sound. The use of a bone conduction microphone having a high tolerance to noise enables clear communication even in extreme noise environments and also allows the unrestricted use of breathing apparatus and helmets.

The radio interface module (SD) includes a built-in filter amplifier function to correct and amplify the audio signals from the Voiceducer bone conduction earphone. It also has a PTT button is located on the front of the interface for should VOX not be required at all times.

Use of a single AAA battery allows continued operation for up to 350 hours (SB) & 250 hours (SD).

Temco Professional VOX Solution



Temco professional headsets dramatically reduce external noises by using bone conduction technology. By transmitting voice signals through the skull or jawbone, audio clarity is greatly improved and still allows a user to hear ambient noise if required. Alternatively, hearing protection can be provided by using earplugs without impeding radio communications in either direction.

The Professional VOX solution uses a DSP controlled radio interface module (DM19) that activates only on human speech preventing false activation from ambient or other vocal noises (e.g. coughing). In addition, the radio interface prevents speech clipping normally associated with VOX systems. All Temco radio interfaces provide audio amplification to the users voice signals.

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Temco Commercial VOX System

Bone Conduction Earpiece & Radio Interface Unit

Commercial Grade

Temco Earpiece Bone Conduction & VOX

VOICEDUCER[®]

- Two-way communications using one ear.
- Clear audio in noisy environments
- Enables use of masks/ helmets and respirators
- Discreet, safe & comfortable
- Radio interface (SD) amplifies audio for clear exceptionally voice communications
- Durable & compact die-cast body
- Hands-free operation using VOX (SD)

Bone Conduction Earpiece & Radio Interface Module

LESD

+

LEEML1-T



= LEVOX-EBM

Radio Model		Connector	Logic Part #
Motorola	GP300	2-pin	LEVOX-EBM-GP300
	GP328	Multipin	LEVOX-EBM-GP328
	GP328P	Multipin	LEVOX-EBM-GP328P
	XTS5000	Hirose	LEVOX-EBM-XTS
	Mototrbo	Multipin	LEVOX-EBM-MRTBO
Icom	IC-F14/F24	2-Pin 2 Screw	LEVOX-EBM-ICOM
Kenwood	TK2-3170	2-pin	LEVOX-EBM-KEN
	TK2-3207		
	TK2-3140	Multipin	LEVOX-EBM-KENMP
	TK2-3180		
Tait	TP8100	Multipin	LEVOX-EBM-TAIT
Vertex	VX-420	Single pin screw	LEVOX-EBM-VERTEX
	VX-350		
	VX-820	Multipin	LEVOX-EBM-VERTEXMP

Product Code`	Description
LESD	Radio Interface Unit
LEEML1-T	Bone Conduction Ear Piece

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Temco Professional DSP VOX System

Bone Conduction Earpiece & DSP Controlled VOX Radio Interface LEVOX-DSP-EBM

Professional Grade

Ear Bone Conduction VOX

- Total two way radio handsfree operation in VOX mode
- DSP controlled VOX activation on **voice signal ONLY** – does not activate on other vocal signals e.g. coughing
- Store and forward (microseconds) eliminates voice clipping at start of speech.
- Waterproof – IP67
- Rechargeable battery – charger supplied
- Highly sensitive bone conduction microphone picks up audio as vibration from vocal chords
- Clear audio in noisy environments
- Enables use of masks/ helmets and respirators

Bone Conduction Earpiece & Radio Interface Module

LEEM7

+

LEDM19



= LEVOX-DSP-EBM

Radio Model		Connector	Logic Part #
Motorola	GP300	2-pin	LEVOX-DSP-EBM-GP300
	GP328	Multipin	LEVOX- DSP-EBM-GP328
	GP328P	Multipin	LEVOX- DSP -EBM-GP328P
	XTS5000	Hirose	LEVOX- DSP-EBM-XTS
	Mototrbo	Multipin	LEVOX- DSP-EBM-MRTBO
Icom	IC-F14/F24	2-Pin 2 Screw	LEVOX- DSP-EBM-ICOM
Kenwood	TK2-3170 TK2-3207	2-pin	LEVOX- DSP-EBM-KEN
	TK2-3140 TK2-3180	Multipin	LEVOX- DSP-EBM-KENMP
Tait	TP8100	Multipin	LEVOX- DSP-EBM-TAIT
Vertex	VX-420 VX-350	Single pin screw	LEVOX- DSP-EBM-VERTEX
	VX-820	Multipin	LEVOX- DSP-EBM-VERTEXMP

Product Code	Description
LEEM7	Ear Bone Conduction VOX
LEDM19	DSP Controlled VOX Radio Interface

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Temple Transducer Headset & DSP Controlled VOX

Radio Interface LEVOX-DSP-THS

Professional Grade

Headset Bone Conduction VOX

- Noise cancelling boom microphone
- Bone conduction temple transducer speakers locate in front of ear
- Comfortable lightweight behind the head style fitting
- Total two way radio handsfree operation in VOX mode
- DSP controlled VOX activation on **voice signal** ONLY – does not activate on other vocal signals e.g. coughing
- Store and forward (microseconds) eliminates voice clipping at start of speech.
- Waterproof – IP67
- Rechargeable battery – charger supplied

Bone Conduction Headset & Radio Interface

LEHG21

+

LEDM19



= LEVOX-DSP-THS

Radio Model		Connector	Logic Part #
Motorola	GP300	2-pin	LEVOX- DSP-THS-GP300
	GP328	Multipin	LEVOX- DSP-THS-GP328
	GP328P	Multipin	LEVOX- DSP-THS- GP328P
	XTS5000	Hirose	LEVOX- DSP-THS-XTS
	Mototrbo	Multipin	LEVOX- DSP-THS-MRTBO
Icom	IC-F14/F24	2-Pin 2 Screw	LEVOX- DSP-THS-ICOM
Kenwood	TK2-3170 TK2-3207	2-pin	LEVOX- DSP-THS-KEN
	TK2-3140 TK2-3180	Multipin	LEVOX- DSP-THS-KENMP
Tait	TP8100	Multipin	LEVOX- DSP-THS-TAIT
Vertex	VX-420 VX-350	Single pin screw	LEVOX- DSP-THS-VERTEX
	VX-820	Multipin	LEVOX- DSP-THS-VERTEXMP

Product Code	Description
LEHD21	Temple Transducer Headset
LEDM19	DSP Controlled VOX Radio Interface

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